



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/563,214	05/05/2006	Shinji Imoto	2271/75688	6004
23432 7590 09/25/2008 COOPER & DUNHAM, LLP 1185 AVENUE OF THE AMERICAS NEW YORK, NY 10036				
EXAMINER ZIMMERMANN, JOHN P				
ART UNIT		PAPER NUMBER		
2861				
MAIL DATE		DELIVERY MODE		
09/25/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/563,214

Applicant(s)

IMOTO ET AL.

Examiner

John P. Zimmermann

Art Unit

2861

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 July 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-9 is/are rejected.
- 7) ☒ Claim(s) 2 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SE/US)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(c), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(c) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10 July 2008 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

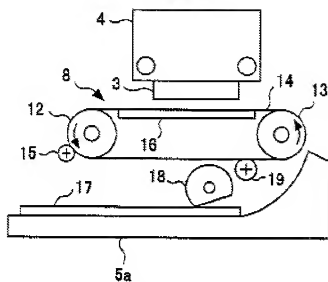
evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(c), (f) or (g) prior art under 35 U.S.C. 103(a).

5. **Claims 1 & 3-9** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Maki et al.** (US 2002/0126193 A1) in view of **Kuwabara et al.** (JP2004-99280) and further in view of **Bannai et al.** (US 5,121,170 A).

a. As related to independent **claim 1**, Maki et al. teaches an image forming apparatus comprising a conveyance belt that conveys a recording medium by attracting the medium by an electrostatic force generated by positive and negative electric charges applied. A charger that applies the electric charges alternately to the belt, and a recording head discharges droplets of liquid toward the medium being conveyed by the belt (Maki et al. – Detailed Description, Page 7, Paragraph 133 and Figures 2, 3, & 5, Reference #14, #19, #24, & #3, all shown below).

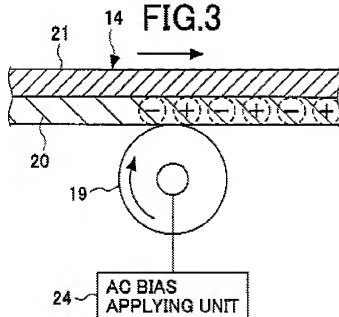
Maki et al. -

FIG.2

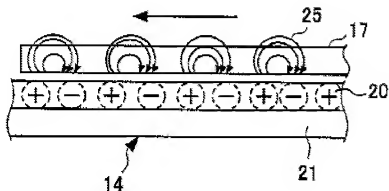


Maki et al. -

FIG.3

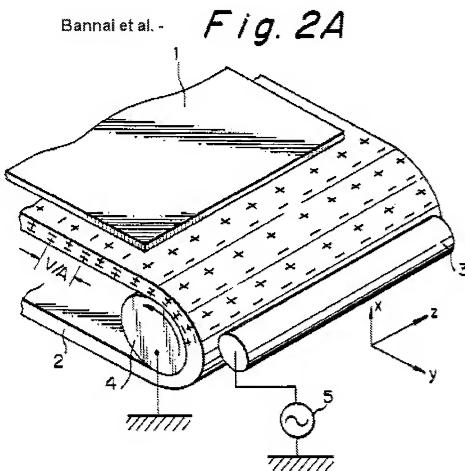


Maki et al. -
FIG.5



b. Continuing with **claim 1**, while Maki et al. *does not* specifically teach a control part configured to adjust an amount of electric charges induced on a surface of the recording medium by the positive and negative electric charges applied, one of ordinary skill in the art at the time of the invention would surely understand that varying or "controlling" the charges applied to the conveyance belt would naturally vary the amount of electric charges induced, by nature of the system. *However*, Kuwabara et al. teaches a similar image forming apparatus with a control part configured to adjust the amount of electric charges used with a conveyance belt and therefore induced on the surface of the recording medium (Kuwabara et al. – Abstract and Paragraphs 0032, 0035, 0036) in reference to a variety of factors. *Additionally*, Maki et al. also teaches that the background of the art at the time of the invention clearly depicts adjusting the amount of the electric charges on the surface of the recording medium to cause the electric charges on the surface of the recording medium to neutralize [i.e. negative charge applied to a positively charged surface] and prevent the displacement of the landing spots of ink

droplets (Maki et al. – Background, Page 1, Paragraph 6). *Finally*, Bannai et al. teaches a similar transporting member that is charged using an alternating voltage and a control system, which can adjust the amount of electrical charge [i.e. 3kV or 4kV or 500Vp-p] based on a variety of things including adjusting the retaining force (Bannai et al. – Description, Column 7, Line 46 – Column 8, Line 31 and Figure 2A, Reference #4 & #5, shown below).

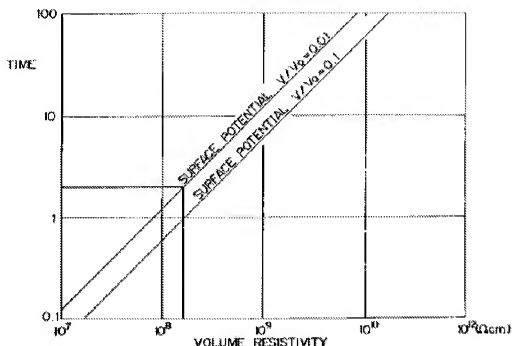


Given the same field of endeavor, specifically an image forming apparatus and the chargeable conveyance mechanism, it is apparent that one of ordinary skill in the art at

the time the invention was made would have been motivated to combine the image forming apparatus with a conveyance belt that is charged in an effort to attract the recording medium as taught by Maki et al. with the image forming apparatus with a conveyance belt that is charged in an effort to attract the recording medium and controlled as taught by Kuwabara et al. and the conveyance device for use in an image forming apparatus with a controller for controlling the amount of electric charge as taught by Bannai et al., in an effort to provide the optimal amount of charge induced on the recording medium to ensure a proper retaining force is achieved (Bannai et al. – Description, Column 8, Lines 24-30) while preventing the displacement of the landing spots of the ink drops (Maki et al. – Background, Page 1, Paragraph 6).

c. As related to dependent **claim 3**, the combination of Maki et al., Kuwabara et al., and Bannai et al. remains as applied above and continues to teach the control part adjusts the amount of the electric charges on the surface of the recording medium in accordance with a result of detection of a volume resistance of the recording medium (Bannai et al. – Figure 7, shown below).

Bannai et al. - *Fig. 7*



- d. As related to dependent **claim 4**, the combination of Maki et al., Kuwabara et al., and Bannai et al. remains as applied above and continues to teach the control part adjusts the amount of the electric charges on the surface of the recording medium in accordance with a result of detection of environment temperature and humidity [i.e. factors of the recording medium such as thickness, surface condition, and others] (Kuwabara et al. – Abstract and Paragraph 32).
- e. As related to dependent **claim 5**, the combination of Maki et al., Kuwabara et al., and Bannai et al. remains as applied above and continues to teach the control part adjusts the amount of the electric charges on the surface of the recording medium in accordance with externally given information regarding the resistance value of the recording medium [i.e. factors of the recording medium including surface condition or charge density]

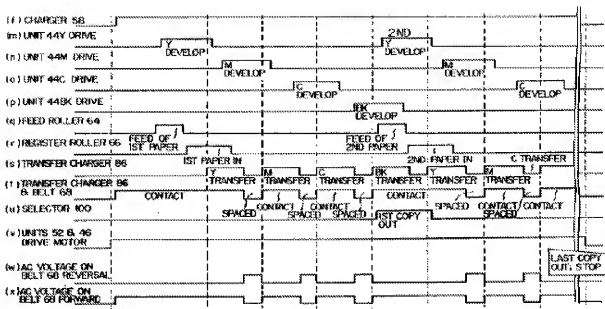
(Kuwabara et al. – Abstract and Paragraph 32 and Bannai et al. – Description, Column 7, Line 25 – Column 8, Line 31) .

f. As related to dependent **claim 6**, the combination of Maki et al., Kuwabara et al., and Bannai et al. remains as applied above and continues to teach the control part adjusts the amount of the electric charges on the surface of the recording medium by controlling a charge period length [i.e. changing the AC voltage frequency] of positive and negative charges applied by the charger to the conveyance belt (Bannai et al. – Description, Column 7, Line 25 – Column 8, Line 31).

g. As related to dependent **claim 7**, the combination of Maki et al., Kuwabara et al., and Bannai et al. remains as applied above and continues to teach the control part adjusts the amount of the electric charges on the surface of the recording medium by controlling an alternating voltage [i.e. changing the AC voltage frequency, or peak-to-peak level] applied to the charger to apply positive and negative charges to the conveyance belt (Bannai et al. – Description, Column 7, Line 25 – Column 8, Line 31).

h. As related to dependent **claim 8**, the combination of Maki et al., Kuwabara et al., and Bannai et al. remains as applied above and continues to teach the control part adjusts the amount of the electric charges on the surface of the recording medium by controlling a timing of applying electric charges onto the conveyance belt so as to switch existence/nonexistence of charges on the surface of the recording medium [i.e. negative charge to a positive charge or controlling the timing of applying an AC voltage] (Maki et al. – Background, Page 1, Paragraph 6 and Bannai et al. – Figure 16B, Reference #w & #x, shown below).

Bannai et al. - *Fig. 16B*



- i. As related to dependent **claim 9**, the combination of Maki et al., Kuwabara et al., and Bannai et al. remains as applied above and continues to teach the control part adjusts the amount of the electric charges on the surface of the recording medium by controlling at least one of a conveyance speed and a stop time of said conveyance belt so as to change a time period from a time when the charges are applied to the conveyance belt until a time when the charges on the conveyance belt reach the recording position. (Maki et al. – Detailed Description, Page 7, Paragraphs 133 – 134).

Response to Arguments

6. Applicant's arguments with respect to **claims 1-2** have been considered but are moot in view of the new ground(s) of rejection.

7. With respect to **claim 1**, and therefore **claims 2-9**, which inherently contain all of the limitations of independent **claim 1**, applicant argued that “Maki is not concerned with control of an amount of electric charges...” and “Kuwabara is not concerned with the problem that the charges on the surface of the recording medium causes...” and finally “one skilled in the art would not be motivated by Kuwabara to adjust...” Due to the amendments, a further search and review of prior art of record was necessitated thereby producing a new grounds of rejection. In response to applicant’s arguments, Examiner has provided a new ground(s) of rejection that specifically addresses the newly incorporated limitations of amended **claim 1**, as well as the further detailing of the arguments. Applicant is requested to see the rejection detailed above for further response to applicant’s argument of patentability. In response to applicant’s argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the rejection detailed above clearly indicates the motivation to combine, specifically the desire to promote the use of alternating charges to attract a recording media to a conveyance device, while preventing the displacement of the landing spots of the ink droplets (Maki et al. - Background, Page 1, Paragraph 6). As no further arguments were made, all dependent claims have been rejected accordingly.

Allowable Subject Matter

8. **Claim 2** is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim (independent **claim 1**) and any intervening claims.
9. The following is a statement of reasons for the indication of allowable subject matter: While the prior art teaches a control part that adjusts the amount of the electric charges on the surface of the recording medium (See rejection of independent **claim 1**, detailed above), the prior art fails to teach or fairly suggest the structural limitation of a **surface resistance measurement part** configured to detect a surface resistance value of the recording medium and the use of that detected value.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hasegawa et al. (US 5,276,483 A) teach an image forming apparatus with a conveyance device that is charged and incorporates a temperature and humidity detecting device to provide input to the charge controller.
11. **Examiner's Note:** Examiner has cited particular Figures & Reference Numbers, Columns, Paragraphs and Line Numbers in the references as applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in their entirety as potentially teaching all or part of

the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the examiner.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John P. Zimmermann whose telephone number is (571)270-3049. The examiner can normally be reached on Monday - Thursday, 7:00am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Luu can be reached on 571-272-7663. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/LUU MATTHEW/
Supervisory Patent Examiner, Art Unit 2861


JPZ